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| BEYER WEAVER & THOMAS LLP | | | RAMPURIA, SATISH | |
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DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/886,454

Applicant(s)

SOKOLOV ET AL.

Examiner

Satish S. Rampuria

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2424 2191

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 21-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2004 (Fig. 1A and 1B) is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/01/2004.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Response to Amendment

1. This action is in response to the amendment received on Jan 11, 2005.
2. The objection to use of trademarks (in the specification) is withdrawn in view of applicant's amendment.
3. Claims 1-8 and 15 are amended.
4. Claims 18-20 are cancelled by the applicant.
5. New claims 21-26 have been added by the applicant.
6. Claims 1-17 and 21-26 are pending in the application.

Information Disclosure Statement

7. An initialed and dated copy of Applicant's IDS form 1449 filed on 11/01/2004 is attached to the instant Office action.

Claim Rejections - 35 USC § 112, second paragraph

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1, 2, 5, 6, 8, 9, 12, 13, 15, 16, 17, 23, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite, the trademark or trade name can not be used to identify any particular material or product.

Claims 1, 2, 5, 6, 8, 9, 12, 13, 15, 16, 17, 23, and 24 contain the trademark/trade name Java. The use of the trademark "Java" has been noted in the claims. It should be appropriate or proper term (see MPEP 608.01(v)) used, wherever it appears and be accompanied by the generic

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terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

10. Claim 1 recites the limitations "said Java virtual machine" and "said Java object". There is insufficient antecedent basis for this limitation in the claim.

11. Claims 2, 5, 15-17, and 23-24 recite the limitation "said Java object". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 1-4, 6-11, 13-17, 21, 22, and 25-27 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,151,703 to Crelier, hereinafter called Crelier.

Per claim 1:

Crelier discloses:

- A computer readable medium including computer program code for an object representation inside a virtual machine and suitable for use by said Java virtual machine, (col. 3, lines 44-45 "a virtual machine for executing programs written in the Java

programming language”) said computer readable medium comprising: computer program code for a first reference to an internal class representation inside said virtual machine (col. 8, lines 16-17 “the object handle 401 includes a pointer referencing a method table or virtual table (“v table”)”), wherein said internal class representation is associated with said Java object (col. 7, lines 63-64 “When a Java application is executed, the virtual machine 220 loads one or more class files” also, Fig. 3 and related discussion) and wherein said first reference can be used to invoke one more methods associated with said object (col. 4, lines 17-20 “an “invoker” slot is employed from all calls from an interpreted caller (or the runtime interpreter) to the callee method (i.e., the method associated with the method block)”); and computer program code for a second reference to instance fields of said object (col. 8, lines 21-22 “the method table 420 includes a pointer 421 pointing to a ClassClass descriptor 430”) which is represented by said second reference can be used to access one or more instance fields of said Java object at run time (col. 8, lines 5-7 “At runtime, one or more objects are instantiated from classes. FIG. 4 illustrates the layout of a typical runtime object 400”).

Per claim 2:

The rejection of claim 1 is incorporated, and further, Crelier disclose:

- wherein said second reference is a reference to an array of references (col. 8, lines 13-14 “objects are maintained in a global array for facilitating object processing”)

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- wherein each reference in said array of references is a reference to an instance field associated with said Java object (col. 8, lines 19-20 “The method table 420, in turn, includes a list of methods for the objects of the class”)

Per claims 3 and 4:

The rejection of claim 1 is incorporated, and further, Crelier disclose:

- wherein said first reference is allocated as four bytes (col. 10, lines 62-64 “The third slot stores a pointer (e.g., 32-bit address pointer) to compiled code, *CompiledCode, which corresponds to the compiled code slot 463”). 8 bit equal to 1 byte, therefore, 32 bit equal to 4 bytes.

Per claims 6 and 7:

The rejection of claim 1 is incorporated, and further, Crelier disclose:

- computer program code for a hash key that can be used to identify the Java object (col. 8, lines 42-43 “unsigned long thishash; unsigned long totalhash”)

Claim 8 is the method claim corresponding to system claim 1 and rejected under the same rational set forth in connection with the rejection of claim 1 above.

Claim 9 is the method claim corresponding to system claim 2 and rejected under the same rational set forth in connection with the rejection of claim 2 above.

Claim 10 is the method claim corresponding to system claim 3 and rejected under the same rational set forth in connection with the rejection of claim 3 above.

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Claim 11 is the method claim corresponding to system claim 4 and rejected under the same rational set forth in connection with the rejection of claim 4 above.

Claim 13 is the method claim corresponding to system claim 6 and rejected under the same rational set forth in connection with the rejection of claim 6 above.

Claim 14 is the method claim corresponding to system claim 7 and rejected under the same rational set forth in connection with the rejection of claim 7 above.

Claim 22 is the system claim corresponding to computer program product claim 2 and rejected under the same rational set forth in connection with the rejection of claim 2 above.

Claim 25 is the system claim corresponding to computer program product claim 1 and rejected under the same rational set forth in connection with the rejection of claim 1 above.

Claim 26 is the system claim corresponding to method claim 9 and rejected under the same rational set forth in connection with the rejection of claim 9 above.

Per claim 15:

Crelier discloses:

- a method for accessing information regarding an object which has been represented in an internal object representation inside a virtual machine(col. 3, lines 44-45 “a virtual machine for executing programs written in the Java programming language”), said method comprising:

- identifying an internal object representation for said object inside said virtual machine (col. 3, lines 50-52 “The program comprises objects created from Java classes; each class defines data and methods for the class”);
- determining whether a method associated with said object should be invoked or an instance field associated with said object should be accessed (col. 4, lines 17-20 “an “invoker” slot is employed from all calls from an interpreted caller (or the runtime interpreter) to the callee method (i.e., the method associated with the method block);
- using a first reference in said internal object representation to locate an appropriate internal class representation(col. 8, lines 16-17 “the object handle 401 includes a pointer referencing a method table or virtual table (“v table”)”) inside said virtual machine when said determining that a method should be invoked (col. 7, lines 63-64 “When a Java application is executed, the virtual machine 220 loads one or more class files” also, Fig. 3 and related discussion), wherein said internal class representation is associated with said object and can be used to invoke one more methods associated with said object (col. 8, lines 16-17 “the object handle 401 includes a pointer referencing a method table or virtual table (“v table”)”); and
- using second reference in said internal object representation to locate one or more instance fields of said object when said determining determines that an instance field should be accessed (col. 4, lines 17-20 “an “invoker” slot is employed from all calls from an interpreted caller (or the runtime interpreter) to the callee method (i.e., the method associated with the method block).

Per claim 16:

The rejection of claim 15 is incorporated, and further, Crelier discloses:

- skipping a header of said internal class representation to access a method table associated with said Java object (col. 8, lines 62-64 “The method table 420 includes a pointer 423 to the method block for the class (or superclass, if this in an inherited class)”)

Per claim 17:

The rejection of claim 15 is incorporated, and further, Crelier discloses:

- wherein said information regarding said Java object includes a field descriptor table (col. 8, lines 21-22 “the method table 420 includes a pointer 421 pointing to a ClassClass descriptor 430”)

Claim 21 is the system claim corresponding to method claim 15 and rejected under the same rational set forth in connection with the rejection of claim 15 above.

Claim 27 is the system claim corresponding to methodclaim 15 and rejected under the same rational set forth in connection with the rejection of claim 15 above.

Substantially as claimed.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 5, 12, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Crelier in view of US Patent No. 6,237,043 to Brown et al., hereinafter called Brown.

Per claim 5:

The rejection of claim 1 is incorporated, and further, Crelier disclose:

- wherein a method table associated with said Java object is allocated immediately after said header (col. 10, lines 62-64 “The method table 420 includes a pointer 423 to the method block for the class (or superclass, if this in an inherited class)”)

Crelier does not explicitly disclose internal class representation includes a header of a predetermined size.

However, Brown, in an analogous computer system discloses internal class representation includes a header of a predetermined size (col. 3, lines 58-61 “an object by defining a memory area within the object's header... contains the locking mechanism or a pointer to a locking mechanism” and col. 4, lines 12-13 “allocate additional header memory area... object is created”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of including header with memory allocated area within the object as taught by Brown onto the method of executing Java programming code as taught by Crelier. The modification would be obvious because of one of ordinary skill in the art would be motivated to predetermine the header size to not to overhead the memory as suggested by Brown (col. 3, lines 35-48).

Claim 12 is the method claim corresponding to computer program product claim 5 and rejected under the same rationale set forth in connection with the rejection of claim 5 above.

Claim 24 is the system claim corresponding to computer program product claim 5 and rejected under the same rationale set forth in connection with the rejection of claim 5 above.

Response to Arguments

16. Applicant's arguments with respect to claims have been considered but they are not persuasive.

In the remarks, the applicant has argued that:

- Crelier does not teach or suggest an object representation inside a virtual machine which includes a first/second reference to instance fields of the object represented by the object representation inside the virtual machine.
- Crelier does not teach or suggest the combination of the features recited in claim 15.

Examiner's response:

- Crelier discloses a virtual machine for executing programs written in the Java programming language (see summary col. 3 to 4, lines 40-67 and 1-55). Crelier does disclose referencing to the objects during the runtime (fig. 4 and related discussion) in which Crelier uses various types of pointers and references to different types of objects.

Applicant only makes general allegations and does not point out any errors in the rejection. Therefore, the rejection is proper and maintained herein.

- Applicant's arguments with respect to claim 15 are not persuasive because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Therefore, the rejection is proper and maintained herein.

Conclusion

17. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.



**WEI Y. ZHEN
PRIMARY EXAMINER**

Satish S. Rampuria
Patent Examiner
Art Unit 2124
04/04/2005